

# **A New Epidemic**

By

Melanie D. Paul

A Master's Paper submitted to the faculty of  
the University of North Carolina at Chapel Hill  
In partial fulfillment of the requirements for  
the degree of Master of Public Health in  
the Public Health Leadership Program.

Chapel Hill

2007

**Signature**

**Advisor: William Williamson**

**Signature**

**Second Reader: LaVerna R. Keller**

**November 19, 2007**

**Date**

'A New Epidemic'

by:  
Melanie D. Paul

Date: November 19, 2007

A Master's paper submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the School of Public Health, Public Health Leadership Program.

Advisor: William Williamson, MPH

Handwritten signature of William Williamson in cursive script.

Second Reader: LaVerna R. Keller, AAS

Handwritten signature of LaVerna R. Keller in cursive script.

Obesity is quickly becoming the number one health threat to Americans today. Until recently, obesity was not even considered a disease. Now, obesity results in an estimated 300,000 premature deaths per year and more than thirty health conditions are being researched for their association with obesity.<sup>1</sup> Astoundingly, \$102.2 billion in 1999 was contributed to the direct care costs of obesity<sup>1</sup>. The U.S. Surgeon General Richard Carmona, MD called obesity the greatest threat to public health today. It kills more Americans every year than AIDS, all cancers and all accidents combined<sup>2</sup>.

Obesity is an enormous public health problem, but seems to fall in the shadow of other public health problems. According to Storm and Wells, Americans continue to address the health hazards of smoking and have not given obesity the same attention even though it is clearly the top health problem and continues to rise in all segments of the population.<sup>3</sup> Storm and Wells feel more effective clinical and public health approaches are urgently needed.<sup>3</sup>

Storm and Wells also note a drastically high portion of the population is affected by obesity and its negative health consequence. They report 23 percent of Americans are obese, an additional 36 percent are overweight (total of nearly 60 percent), compared to 19 percent of Americans being daily smokers, 14 percent living in poverty and only 6 percent are heavy drinkers<sup>3</sup>. This clearly points out that obesity is the number one health concern facing Americans today.

Over half of all adults in the United States are estimated to be overweight or obese. Obesity occurs more commonly in women with lower incomes and is more common among African American and Mexican American women than among white women.<sup>4</sup>

Children are also suffering the wrath of obesity at alarming rates. The prevalence of overweight and obese children has doubled in the past 2 decades.<sup>5</sup> According to the Surgeon General's 'Call to Action to Prevent and Decrease Overweight and Obesity', 13% of children aged 6 to 11 and 14% of adolescents aged 12 to 19 years are overweight<sup>6</sup>. According to the CDC, the number of overweight children has tripled since 1980 resulting in 9 million young people who are overweight.<sup>7</sup> The proportion of adolescents from poor households who are overweight or obese is twice that of adolescents from middle and high income households<sup>4</sup>. Childhood obesity creates a domino effect as the likelihood of adult obesity increases dramatically for obese children. Even more disturbing is the fact that obesity is causing health problems in children that were unthinkable 20 years ago - such as diabetes and asthma<sup>2</sup>. Adult obesity is by nature an intractable disease despite unlimited efforts to reverse. More success in preventing adult obesity would result if the pediatric community would take a leadership role in prevention and early recognition of pediatric obesity.<sup>5</sup> Healthy People 2020 also advocates that efforts to maintain a healthy weight should start early in childhood and continue throughout adulthood to improve success rates.<sup>4</sup>

Obesity is a relatively "new" health issue. People often blame overweight or obesity on their genetics. But historically, populations have had significantly less percentages of

obese persons. Even as recent as the 1960's only 13% of the population was obese compared to 30% in the year 2000.<sup>8</sup> Obesity is not just an individual problem nor can we solely blame individuals. It is a societal problem as well. The gradual weight gain currently seen in many populations around the world is a relatively new phenomenon and likely attributable to a changing environment that provides a constant food supply and has reduced the need for physical activity to survive.<sup>9</sup> Many environmental factors that promote overeating include: portion size, high fat/energy dense foods, high glycemic index of foods, soft drinks, sugar, fast foods, snack foods, low calcium, accessibility of food, low cost of food, taste of food, and variety.<sup>9</sup> Substantial data exists to show that low levels of physical activity are associated with weight gain. Environmental factors that contribute to reduced physical activity include: reduced need for physical labor in most jobs, decreased requirement of physical activity in schools, reductions in physical activity required for daily living, competition from attractive sedentary activities such as television, video/DVD, video/computer and internet.<sup>9</sup> Technology and transportation have definitely decreased the need for physical activity in daily lives.

A person is determined to be overweight or obese depending on their individual BMI. According to the CDC Body Mass Index (BMI) is a number calculated from a person's weight and height. Even though BMI does not measure fat directly, BMI is a reliable indicator of body fatness for people and can be considered an alternative for direct measures of body fat. Additionally, BMI is an inexpensive and easy-to-perform method of screening and categorizing a person's weight. BMI is used as a risk indicator for many

health problems. The categories break down as follows: below 18.5 = underweight; 18.5 – 24.9 = normal; 25.0 – 29.9 = overweight; and 30.0 and above = obese.<sup>10</sup>

There are many health effects associated with obesity. The following is a list and brief description of some of the most common effects of obesity according to Stanford

Hospital and Clinics:<sup>11</sup>

- **High blood pressure** - Additional fat tissue in the body needs oxygen and nutrients in order to live, which requires the blood vessels to circulate more blood to the fat tissue. This increases the workload of the heart because it must pump more blood through additional blood vessels. More circulating blood also means more pressure on the artery walls. Higher pressure on the artery walls increases the blood pressure. In addition, extra weight can raise the heart rate and reduce the body's ability to transport blood through the vessels.
- **Diabetes** - Obesity is the major cause of type 2 diabetes. This type of diabetes begins in adulthood. Obesity can cause resistance to insulin, the hormone that regulates blood sugar. When obesity causes insulin resistance, the blood sugar becomes elevated. Even moderate obesity dramatically increases the risk of diabetes.
- **Heart disease** - Atherosclerosis (hardening of the arteries) is present 10 times more often in obese people compared to those who are not obese. Coronary artery disease is also more prevalent because fatty deposits build up in arteries that supply the heart. Narrowed arteries and reduced blood flow to the heart can cause chest pain (angina) or a heart attack. Blood clots can also form in narrowed arteries and cause a stroke.
- **Joint problems, including osteoarthritis** - Obesity can affect the knees and hips because of the stress placed on the joints by extra weight. Joint replacement surgery, while commonly performed on damaged joints, may not be an advisable option for an obese person because the artificial joint has a higher risk of loosening and causing further damage.
- **Sleep apnea and respiratory problems** - Sleep apnea, which causes people to stop breathing for brief periods, interrupts sleep throughout the night and causes sleepiness during the day. It also causes heavy snoring. Respiratory problems associated with obesity occur when added weight of the chest wall squeezes the lungs and causes restricted breathing. Sleep apnea is also associated with high blood pressure.

- **Cancer** - In women, being overweight contributes to an increased risk for a variety of cancers including breast, colon, gallbladder, and uterus. Men who are overweight have a higher risk of colon and prostate cancers.
- **Metabolic syndrome** - The National Cholesterol Education Program has identified metabolic syndrome as a complex risk factor for cardiovascular disease. Metabolic syndrome consists of six major components: abdominal obesity, elevated blood cholesterol, elevated blood pressure, insulin resistance with or without glucose intolerance, elevation of certain blood components that indicate inflammation, and elevation of certain clotting factors in the blood. In the US, approximately one-third of overweight or obese persons exhibit metabolic syndrome.
- **Psychosocial effects** - In a culture where often the ideal of physical attractiveness is to be overly thin, people who are overweight or obese frequently suffer disadvantages. Overweight and obese persons are often blamed for their condition and may be considered to be lazy or weak-willed. It is not uncommon for overweight or obese conditions to result in persons having lower incomes or having fewer or no romantic relationships. Disapproval of overweight persons expressed by some individuals may progress to bias, discrimination, and even torment.

Very recently, a large scale study conducted by the World Cancer Research Fund (WCRF) reveals a very close link between body fat and cancer. The link is closely associated with cancer of the esophagus, pancreas, colorectum, endometrium (womb), kidney and post-menopausal breast cancer.<sup>12</sup> Reasons stated for the link between body fat and cancer include the relationship between excess fat and the hormonal balance in the body.<sup>12</sup> The report explains that fat cells release hormones such as estrogen which increase the risk for breast cancer and fat around the waist releases the growth hormone which also increases levels of risk.<sup>12</sup>

Children also suffer some of the same problems as adults. However, unique problems exist for children who are overweight or obese. Risk factors for heart disease, such as high cholesterol and high blood pressure, occur with increased frequency in overweight

children and adolescents compared to children with a healthy weight. Type 2 diabetes is now increasing dramatically in children and adolescents. Overweight and obesity are closely linked to type 2 diabetes.<sup>6</sup> Some studies also link childhood obesity with asthma. In addition, unhealthy diet and physical inactivity can cause or aggravate many other chronic diseases such as stroke and some cancers.<sup>7</sup> The effects of childhood and adolescent obesity do not stop here. Overweight adolescents have a 70% chance of becoming overweight or obese adults.<sup>6</sup>

Exercise rates for all ages of Americans have decreased over recent years:<sup>13</sup>

- More than 60 percent of adults do not achieve the recommended amount of regular physical activity. In fact, 25 percent of all adults are not active at all.
- Inactivity increases with age and is more common among women than men and among those with lower income and less education than among those with higher income or education.
- Nearly half of young people aged 12-21 are not vigorously active on a regular basis.
- Physical activity declines dramatically with age during adolescence.
- Female adolescents are much less physically active than male adolescents.

More than a third of young people in grades 9-12 do not regularly engage in vigorous physical activity.<sup>14</sup> According to MMWR, "...61.5% of children aged 9-13 years do not participate in any organized physical activity during their non-school hours and that 22.6% do not engage in any free-time physical activity" (pg. 785).<sup>14</sup>



According to a report by the CDC, physical activity can improve health in multiple ways:<sup>13</sup>

- People who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis.
- Physical activity need not be strenuous to achieve health benefits.
- Greater health benefits can be achieved by increasing the amount (duration, frequency, or intensity) of physical activity.

Regular physical activity that is performed on most days of the week helps reduce the following risks, many of which are the leading causes of illness and death in the United States.<sup>13</sup>

- Reduces the risk of dying prematurely.
- Reduces the risk of dying from heart disease.
- Reduces the risk of developing diabetes.
- Reduces the risk of developing high blood pressure.
- Helps reduce blood pressure in people who already have high blood pressure.
- Reduces the risk of developing colon cancer.
- Reduces feelings of depression and anxiety.
- Helps control weight.
- Helps build and maintain healthy bones, muscles, and joints.
- Helps older adults become stronger and better able to move about without falling.
- Promotes psychological well-being.

“Given the numerous health benefits of physical activity, the hazards of being inactive are clear. Physical inactivity is a serious, nationwide problem. Its scope poses a public health challenge for reducing the national burden of unnecessary illness and premature death.”<sup>13</sup>

Mortality and morbidity directly caused by obesity is well documented and researched. Obesity is recognized as a disease by organizations known throughout the medical world including the World Health Organization, the National Academy of Sciences, the National Institutes of Health, the Food and Drug Administration, the Social Security Administration, the International Classification of Diseases.<sup>15</sup> However, most insurers fail to recognize obesity as a disease. Change is on the way, but as far as how much change and how fast is yet to be known. A change in the Medicare policy was made in July of 2004. Medicare removed language in its regulations which stated ‘obesity is not an illness’, restricting payments for the treatment of obesity.<sup>16</sup> However, Medicare did not say obesity was a disease, nor did Medicare suggest physical activity as a means of treating obesity. This is a step in the right direction, albeit a small step.

Medicare is often referred to as the ‘golden standard’, so there is hope other insurance companies will follow in Medicare’s footsteps. Insurance companies will often cover prescription obesity drugs, gastric bypass surgery and gastric banding for obese patients but most do not cover for overweight patients. Of the insurance companies surveyed by Jeff Horwich, none covered costs for approved “behavior modification” fitness programs or counseling.<sup>17</sup> The irony of it is most of these same insurance companies cover conditions caused by obesity, such as type 2 diabetes, heart disease, hypertension, stroke,

osteoarthritis, and cancers associated with obesity. Many other conditions covered by insurance companies have neither the mortality nor morbidity of obesity.<sup>18</sup> “The Child Health Insurance Program, designed to bring more children under Medicaid coverage, does not cover obesity treatments...Some managed care companies and Health Maintenance Organizations do provide some support such as corporate wellness programs which incorporate weight management, prescription drugs, reimbursement for membership to weight loss programs, and surgery. Many programs require a co-morbid condition such as hyperlipidemia or type-2 diabetes as a condition of covering weight loss treatments.”<sup>1</sup>

Eventually, a person who is obese will begin to experience one or more of the multiple secondary problems that are inherent with obese persons. These health problems / diseases are treatable and are covered by most insurance companies. Insurance companies should take a proactive approach to treating secondary causes and treat the root cause – obesity.

In addition, the cost associated with obesity is extreme and will continue to compound as more and more people become and remain obese. In 2000, \$117 billion was spent on indirect and direct costs attributed to overweight and obesity.<sup>19</sup> Physical inactivity resulted in \$76 billion of health care costs.<sup>7</sup> “If 10% of adults began a regular walking program, \$5.6 billion in heart disease costs could be saved.”<sup>7</sup> Expected lifetime medical care costs for hypertension, hypercholesterolemia, type 2 diabetes, coronary heart disease, and stroke, all of which are directly associated to obesity would be decreased.<sup>20</sup>

It is estimated that a 10% reduction in body weight for men and women age 35 – 64 with mild, moderate, or severe obesity would result in \$2200 to \$5300 decrease in medical costs.<sup>20</sup>

In 1994 health insurance expenditures constituted \$7.7 billion, representing 43% of all spending by U.S. business on coronary heart disease, hypertension, type 2 diabetes, hypercholesterolemia, stroke, gallbladder disease, osteoarthritis of the knee and endometrial cancer.<sup>21</sup> Obesity-attributable business expenditures on paying sick leave, life insurance and disability insurance amounted to \$2.4 billion, \$1.8 billion and \$800 million respectively.<sup>21</sup>

Obesity is a disease with serious secondary health problems that lead to morbidity and mortality. Obesity affects persons across all spans of life. The United States is a developed country with leading technology. Yet, we fail to recognize and treat obesity as a disease. Primarily, insurance companies in the United States have not recognized obesity as a treatable and curable disease under the proper care of health care professionals. More importantly, the preventative benefits of treating obesity have not been recognized by insurance companies. Preventative treatments would likely result in a drastic decrease in the amount of dollars spent on treating the secondary effects of obesity.

Insurance companies should provide legitimate coverage by licensed health care professional teams for the treatment of obesity and of persons overweight. This coverage

should be in addition to the limited present coverage some insurance companies provide for gastric bypass and banding procedures mainly to those who are morbidly obese. Currently, insurance companies cover doctor visits to address obesity and treatment of secondary problems of obesity, but not for obesity as a primary issue. It is only treated once serious secondary health issues are diagnosed.

Opponents to providing coverage for treatment for those overweight or obese point out that millions would be eligible for treatment which would be an instant financial burden on insurance companies that would take quite some time to absorb. There are strategies to reduce the burden that would need to be explored. Examples include combinations of limitations on the amount or duration of services, patient selection criteria, co-payments, and / or caps on annual or lifetime payments.<sup>16</sup>

There are many behavioral modification / lifestyle changes in addition to medication and surgical procedures available in today's health care to address overweight or obese persons. A multidisciplinary approach is necessary. However, to address the issue specifically this paper will look at a behavioral modification / lifestyle change for children from a physical therapy approach. Insurance companies should be responsible for the coverage of physical therapy to address obesity from an exercise / physical activity standpoint.

Physical therapists are licensed health care professionals who diagnose and treat individuals of all ages, from newborns to the elderly, who have medical problems or

other health-related conditions that limit their abilities to move and perform functional activities in their daily lives.<sup>22</sup> Physical therapists evaluate each individual and develop an individual plan of care exercise and modalities to promote the ability to move, reduce pain, restore function, and prevent disability.<sup>22</sup> Physical therapists also take a proactive approach and work to prevent the loss of mobility by developing fitness and wellness programs for healthier and more active lifestyles.<sup>22</sup>

The out of control epidemic of obesity in the United States should be a strong signal to all health care providers to address obesity due to its overreaching effects on all components of health.<sup>23</sup> Physical therapists can help obese persons who are restricted from exercise due to aches and pains of obesity and will be able to address problems with gradually increasing tolerance to exercise. “For those who are overweight or obese, physical therapists balance the progression of the exercise prescription with the need for joint protection and safety during exercise.”<sup>22</sup> Physical therapists understand that overweight and obese individuals may have experienced past failures with exercise and can address these issues through individual treatments.<sup>24</sup> Physical therapists should be the practitioners of choice to address obesity from an exercise point of view.

The American Physical Therapy Association’s goal related to wellness is for physical therapists to be universally recognized as the wellness practitioners of choice.<sup>25</sup>

“Working individually and in coalition with other organizations, APTA has increased its efforts to support enactment of legislation to address public health issues related to physical therapy. This includes condition-specific initiatives, such as improving stroke

prevention and treatment, arthritis prevention and control; as well as population-specific initiatives, including programs to improve physical activity and nutrition, prevent injuries related to falls, and expand coverage of prevention health services.”<sup>20</sup>

The American Physical Therapy Association has established practice patterns and diagnosis. The following are four of the practice patterns and diagnosis that are relevant to treating obesity:<sup>26</sup>

- Primary prevention / risk reduction for cardiovascular / pulmonary disorders
- Impaired Aerobic Capacity / Endurance Associated with Deconditioning
- Primary Prevention / Risk Reduction for Skeletal Demineralization
- Impaired Muscle Performance

The physical therapist will evaluate the patient based on the patient’s diagnosis, establish goals, and then develop a plan of care. The physical therapist will develop a home exercise program for the patient to follow long term to maintain the goals that have been obtained.

The following are all tests that physical therapists are trained in and are available for the therapist to utilize while evaluating the patient:<sup>27</sup>

- Anthropometric (height, weight, girth): Body Mass Index, relative weight, weight for height charts, skin fold thickness, and bioelectrical impedance.
- Physical Activity: direct observation / activity monitoring, indirect calorimetry, heart rate monitoring, accelerometers, pedometers, self-reports / recalls.

- Aerobic Capacity / Endurance: step tests, treadmill tests, time / distance walk / run tests.
- Assistive / Adaptive Devices
- Muscle Performance
- Environmental, Home, Work Barriers: ability to participate, ability to access, safety
- Work, Community, Leisure Integration

Interventions will include patient instruction and therapeutic exercise. Patient instruction includes education of the current condition; health, wellness and fitness programs; explanation of plan of care; and education of risk factors for pathology / pathophysiology, impairments, functional limitations or disabilities.<sup>27</sup>

Goals and outcomes may include: improved physical function, reduction of the risk of recurrence of condition; reduction of risk of secondary impairments; decrease in utilization and cost of health care services.<sup>27</sup>

Physical therapists are well trained and educated with the ability to address obesity as a primary area of concern in health care. As therapists, we need to become leaders in the initiative to address obesity because the obesity crisis is exploding and will have dramatic negative effects on our society if not addressed. We need to advocate our leadership to the many organizations that support and understand how physical activity can positively



affect the obesity crisis. As physical therapy professionals, it is our responsibility to become leaders in the fight against obesity.

Extensive research has been done to show a positive correlation between physical activity and increased weight loss. Many national organizations and policies recognize this.

Substantial resources will be needed to effectively treat overweight and obesity to normalize or improve body weight and fitness as well as determining long-term effects of weight loss on comorbidities of obesity.<sup>5</sup> A multidisciplinary approach will be needed including nutrition, behavioral health, physical therapy, and exercise physiology professionals will be needed.<sup>5</sup>

Healthy People 2010 is a comprehensive set of disease prevention and health promotion objectives for the Nation to achieve over the first decade of the new century. Included are objectives specific to preventing obesity through increased physical activity and improved nutrition:<sup>28</sup>

Overarching Goals:

1. Increase quality and years of healthy life
2. Eliminate health disparities

Focus Areas:

1. Nutrition and Overweight
2. Physical Activity and Fitness

Leading Health Indicators:

1. Physical Activity

## 2. Overweight and Obesity

All of the areas listed are areas that physical therapists can successfully address using exercise as a means of treatment.

Much of physical therapy practice is evidence-based and relies on creditable research studies. Numerous research studies directly link the importance of exercise in weight loss efforts. There are multiple research studies that show positive success rates of decreasing weight for youth with exercise.

Taylor et al conducted a study to investigate the outcome of a family-oriented exercise and education-based intervention on morphology and fitness indicators in children who are overweight. Results indicated significant improvements in BMI, waist and hip girth, blood pressure, resting heart rate, and 5 minute heart rate at the conclusion of their intervention over baseline measures.<sup>29</sup> The researchers state that physical therapists with knowledge of exercise prescription in collaboration with other health care providers may provide a valuable service to these children and their families.<sup>29</sup>

In another study, the authors evaluated the reversibility of obesity-related arterial dysfunction and carotid intima-media thickening by dietary and/or exercise intervention programs in children. Results indicated that the vascular dysfunction associated with obesity in children is partially reversible by even a short program of dietary modification.<sup>30</sup> The addition of an individualized exercise training program for children

enhanced the beneficial arterial effects, which could be sustained when training continued for 1 year.<sup>30</sup>

Sothorn et al examined the safety, feasibility and level of compliance of a resistance training program in a group of preadolescent obese children and examined the overall efficacy of an outpatient clinic based program which included resistance training. The result indicated that resistance training may be safely used for obese preadolescent children in conjunction with moderate intensity aerobic and flexibility exercises.<sup>31</sup>

Another study examined multidisciplinary intervention (dietary, behavioral and exercise) on body weight, BMI and fitness in obese Israeli children and adolescents. Authors concluded combined dietary-behavioral-exercise intervention for childhood obesity resulted in promising weight loss and body mass index decrease.<sup>32</sup> This approach for obese children may help to achieve the ultimate goal of long term maintenance of BMI reduction.<sup>32</sup>

Johnson et al researched the influence of nutrition and exercise interventions on weight loss and lipid profiles over a five year period. The interventions compared cognitive/behavioral and public health /informational formats. Behavioral weight loss interventions can have long-term influences according to the study.<sup>33</sup> Results from this study finds that public health efforts that just provide information about weight loss and increasing activity did not result in a decrease in weight.<sup>33</sup> The study finds that nutritional and eating-habit components should be introduced initially followed by a

change in exercise habits.<sup>33</sup> The important finding in this study is that "...public health efforts for weight reduction in children with obesity which rely primary on education will be ineffective" (pg. 261).<sup>33</sup> This suggests the importance of 'hands-on' health professionals to guide the patient through proper exercise routines.

Nemet et al studied the short- and long-term beneficial effects of a combined dietary-behavioral-physical activity intervention for the treatment of childhood obesity. "This brief multidisciplinary intervention resulted in significant positive effects in weight, BMI, body fat, habitual activity, fitness, and body lipids. Moreover, the participants' ability to incorporate the intervention principles into their daily activities has helped them to maintain most of the achievements at the 1-year follow-up evaluations" (pg. 449).<sup>34</sup> This study also showed a much greater success rate for children involved in a multidisciplinary weight loss program maintaining weight loss for 5 to 10 years than adults.<sup>34</sup>

Sothorn et al also examined the efficacy of a multidisciplinary weight reduction program that combines a very low calorie diet with a moderate-intensity progressive exercise program and behavior modifications for weight reduction in obese children and adolescents. This study like others, showed positive results in weight loss by using a multidisciplinary weight reduction program.<sup>35</sup> The multidisciplinary program in this particular study combined a very low calorie diet, followed by a balanced hypo caloric diet, with a moderate-intensity progressive exercise program and behavior modification.<sup>35</sup> This was effective for weight reduction in both obese children and adolescents.<sup>35</sup>

In addition to the proven effects of exercises in positive weight loss, it has been researched as to the best type of exercise approach. Perri et al studied the 'Effects of Group- Versus Home-Based Exercise in the Treatment of Obesity'. They studied the effects of two aerobic exercise regimens on exercise participation, fitness, eating patterns, treatment adherence, and weight change in 49 obese women undergoing a year-long behavioral weight loss program.<sup>36</sup> During the second 6 months of training, the home-based program demonstrated superior performance to the group program in exercise participation, treatment adherence, and weight loss.<sup>36</sup> The drop out rate in the home-based program was significantly lower than in the group program and the home-based program proved to be more successful long-term than the group program.<sup>36</sup> Success rates for exercise participation and weight loss were better in the home-based program, even if the home-based participant did not complete the entire program.<sup>36</sup>

The research suggests the most effective treatments for obesity will be a multidisciplinary approach. Current public health efforts alone have not slowed the quickly rising epidemic. Physical activity is a key component in the effort to decrease obesity. Physical therapists have the knowledge and skills to safely instruct persons in a proper exercise program. Efforts will be most successful when directed toward children as suggested by Nemet et al.<sup>34</sup>

Considering the conditions directly associated with obesity, significant mounting costs of obesity and secondary conditions of obesity to society and insurance companies, it is a

wonder as to the logistics in not providing coverage for services to treat obesity - especially the treatment of children to prevent adulthood obesity and secondary effects.

Obesity is a treatable disease with proper professional care. Childhood obesity, specifically, has been shown to have substantial success rates, especially when compared to adults. It is necessary to treat obesity as the secondary effects are numerous and extremely costly to society. Obesity should be treated with a multidisciplinary approach including physical therapists, nutritionist / dietitians, primary care physicians, and specialty doctors, among others. Children and adolescents should especially be treated due to the increase in success rates. Physical therapy is one component of the approach that focuses on an exercise program developed to meet each individual's specific needs, addressing any health concerns or diagnoses the patient may have. To address the issue of so many persons qualifying for insurance benefits: children who are obese should be selected first as success rates are higher. Additionally, treatments would be numbered in physical therapy by utilizing a home exercise program. Home exercise programs have been proven successful as previously mentioned. Physical therapy treatments would include a limited number of follow-up treatments over a specific length of time.

Obesity is a serious disease with serious negative consequences for our health care system, insurance companies and our whole society. But it is treatable with the proper health care team. Given the rapidly rising rate of obesity, it is a disease that needs to be addressed immediately. With the efforts of physical therapists and others of a professional multidisciplinary health care team, we can win the battle against obesity. As

health care professionals, we need to take a leadership position and advocate for a proactive approach to treating obesity. Health care professionals also need to stress to health insurers the necessity of making changes in insurance coverage relating to obesity. The health of our country will benefit greatly by decreasing the obesity epidemic. We, as physical therapy providers, have the knowledge and tools to make a major impact in the future health of the people of this country.

## **References:**

1. American Obesity Association; Available at:  
[http://obesity1.tempdomainname.com/treatment/health\\_plans\\_cover.shtml](http://obesity1.tempdomainname.com/treatment/health_plans_cover.shtml).
2. American Medical Association; Available at:  
<http://www.ama-assn.org/ama/pub/category/11759.html>.
3. Storm R, Wells KB. Does Obesity Contribute As Much to Morbidity as Poverty or Smoking? *Public Health*. 2001; 115:229-295.
4. Healthy People 2010; Available at:  
[http://healthypeople.gov/Document/html/uih/uih\\_4.htm#overandobese](http://healthypeople.gov/Document/html/uih/uih_4.htm#overandobese).
5. Prevention of Pediatric Overweight and Obesity, Committee on Nutrition; Available at: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics;112/2/424>.
6. Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity;  
[http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact\\_adolescents.htm](http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_adolescents.htm).
7. Center for Disease Control and Prevention; Available at:  
<http://www.cdc.gov/nccdphp/publications/factsheet/Prevention/obesity.htm>.
8. Paeratakul S, York-Crowe EE, Williamson DA, Ryan DH, Bray GA. Americans on diet: Results from the 1994-1996 continuing survey of food intakes by individuals. *J Am Dietetic Association*; 2002.
9. Hill JO, Donahoo WT. Environmental Contributions to Obesity. 2002; Chapter 7.
10. Center for Disease Control and Prevention; Available at:  
<http://www.cdc.gov/nccdphp/dnpa/obesity/resources.htm>.
11. Stanford Hospital and Clinics; Health Effects of Obesity;  
<http://www.stanfordhospital.com/clinicsmedServices/COE/surgicalServices/generalSurger/bariatricsurgery/bariatricSurgeryObesityHealthEffects>.
12. The World Cancer Research Fund; Available at:  
<http://www.dietandcancerreport.org>.
13. Center for Disease Control and Prevention; Available at:  
<http://www.cdc.gov/nccdphp/srg/ataglan.htm>.
14. Morbidity and Mortality Weekly Report. August 22, 2003; 52(33); 785-788.



15. Downey, M. Insurance Coverage for Obesity Treatments; chapter 19 in *Evaluation and Management of Obesity*, edited by Daniel H. Bessesen, MD and Robert Kushner, MD, 2002. Hanley and Belfus, Inc., Philadelphia PA.
16. American Obesity Association; Available at: <http://obesity1.tempdomainname.com/treatment/medicarefaq.shtml>.
17. Horich, Jeff. What's Covered, What's Not. June 2003.
18. American Obesity Association; Available at: <http://obesity1.tempdomainname.com/treatment/health.shtml>.
19. Kirkland Physical Therapy; Available at: <http://www.kirklandpt.com/pages/news.html>.
20. Oster G, Thompson D, Edelsberg J, Bird A P, Colditz G A. Lifetime Health and Economic Benefits of Weight Loss Among Obese Persons. *American Journal of Public Health*. 1999; Vol 89, Issue 10, 1536-1542.
21. Thompson D, Estimated economic costs of obesity to U.S. business. *American Journal of Health Promotion*. 1998; 13: 120-7.
22. Available at: <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story>.
23. Burlis, Tamera L. The Obesity Factor. Physical Therapy Products. January-February 2006.
24. American Physical Therapy Association; Available at: <http://apta.org/AM/Template.cfm?Section=Consumers>.
25. American Physical Therapy Association. Goals that represent the 2003 priorities of the American Physical Therapy Association. Available at: [http://www.apta.org/governance/HOD/policies/HoDPolicies/Section1/GOALS\\_AND\\_MISSION/HOD\\_06021903](http://www.apta.org/governance/HOD/policies/HoDPolicies/Section1/GOALS_AND_MISSION/HOD_06021903).
26. American Physical Therapy Association. *Normative Model of Physical Therapist Education: 2004 Version*. Alexandria, VA: author; 2004.
27. Hetland HJ. The Obesity Epidemic: Measures & Management. Continuing education presentation: Preview 2020. Las Vegas, NV. Nov. 19-21, 2004.
28. Healthy People 2010; Available at: <http://healthypeople.gov/>.

29. Taylor MJ, Mazzone M, Wrotniak BH. Outcome of an Exercise and Educational Intervention for Children Who are Overweight. *Pediatric Physical Therapy*. 2005; 17(3): 180-188.
30. Woo KS, Chook P, Yu CW, Sung RY, Qiao M, Leung SS, Lam CW, Metreweli C, Celermajer DC. Effects of Diet and Exercise on Obesity-related Vascular Dysfunction in Children. 2004; 109(16): 1981-1986.
31. Sothorn MS, Loftin JM, Udall JN, Suskind RM, Ewing TL, Tang SC, Blecker U. *American Journal of Medical Science*. 2000; 319(6):370-375.
32. Eliakim A, Kaven G, Berger I, Friedland O, Wolach B, Nemet D. *European Journal of Pediatrics*. 2002; 161(8): 449-454.
33. Johnson WG, Hinkle LK, Carr RE, Anderson DA, Lemmon CR, Engler LB, Bergeron KC. *Obesity Res*. 1997; 5(3): 257-261.
34. Nemet D, Barkan S, Epstein Y, Friedland O, Kowen G, Eliakim A. *American Journal of Pediatrics*. 2005; 115(4): e443-e449.
35. Sothorn MS, Undall JN Jr, Suskind RM, Vargas A, Blecker U. *Acta Paediatr*. 2000; 89(9): 1036-1043.
36. Perri MG, Martin AD, Leermakers EA, Sears SF, Notelovitz M. Effects of Group – Versus Home-Based Exercise in the Treatment of Obesity. *Journal of Consulting and Clinical Psychology*. April 1997; Vol.65, No. 2, 278-285.